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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/701,184 | 11/27/2000 | Johannes Bozenhardt | 3286-0111P | 7725 |

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| EXAMINER |
|---|
| PERILLA, JASON M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2634 | |

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/701,184 | BOZENHARDT, JOHANNES |
| | Examiner | Art Unit |
| | Jason M Perilla | 2634 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**.    2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *4*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

1.      Claims 1-8 are pending in the instant application.

### *Information Disclosure Statement*

2.      The information disclosure statement (IDS) submitted filed on November 27,

2000 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information

disclosure statement is being considered by the examiner.

### *Priority*

3.      Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

### *Response to Arguments*

4.      Applicant's arguments received April 2, 2004 have been fully considered but they

are not persuasive.

Regarding the response to the prior art claims rejection of claims 1-8 under 35

USC § 103(a) as being obvious over Corcoles in view of Desurvire et al (pg. 9, section

IV), the Applicant's arguments have been fully considered but are not persuasive. The

Applicant correctly notes that the Examiner utilized Corcoles as the primary reference to

teach most of the limitations of the claim but asserts that "the primary reference does

not teach the features upon which the Examiner relies to reject claim 1" (pg. 10, line 20).

The Examiner disagrees. Indeed, the primary reference Corcoles does *clearly disclose*

all of the features for which it is relied upon in the rejection. The Applicant particularly

argues the limitation of the claims (independent claims 1 and 4) including "level holding

times" is not met by the reference Corcoles and suggests that the Examiner made a

rejection using Corcoles which is only tenable by placing a strained interpretation on the

reference. The Applicant's argument asserts that the disclosure of Corcoles, which

refers to a proportion of samples, is not pertinent or equivalent to an amount of time that

a level remains unchanged or a "level holding time". However, the Examiner has

interpreted and suggests to the Applicant that a number or proportion of samples at

least very closely correlates to an amount of time or more perhaps is identical to an

amount of time. The number of unchanged samples over an observation period

(proportion thereof) is directly related to an amount of time because each of the

samples relates to an amount of time. Indeed a "sample" of any signal is a sample of

that signal which represents that signal for a predetermined amount of time. For

instance, one skilled in the art would likely refer to a "sample rate" or a number of

samples per unit time. If a continuous time signal is sampled at a frequency of 1Khz,

*each sample would represent $1/1000^{th}$ of a second*. Hence, a certain number or

proportion of samples directly includes, implies, and correlates to a representative

amount of time according to the limitation including a level holding time.

The Examiner notes that the Applicant did not pointedly traverse the Examiner's

prior art claims rejection of claims 1-8 under 35 USC § 103(a) as being obvious over

Corcoles in view of Desurvire et al alternatively other than as discussed above.

### *Claim Rejections - 35 USC § 103*

5.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6:       Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Corcoles (5663987 – Referenced in IDS Paper No. 4.) in view of Desurvire et al

(5801862).

Regarding claim 1, Corcoles discloses a method for restoring a binary signal (col.

1, lines 40-51) from a distorted binary signal that is communicated in a disturbed

environment.  Although Corcoles implies that the method applies to electrical binary

signals present on conductive transmission lines, one skilled in the art understands that

the method can be applied to a binary signal used in optical communications.  The

method disclosed by Corcoles comprises: determining time intervals (fig. 5b, refs, 7-12),

each including at least twice the distortion time (col. 3, lines 24-27 - 8 samples being

twice the distortion time of 4 -), detecting an occurrence of level changes of the distorted

binary signal in the time intervals (col. 3, lines 19-21, lines 35-40), determining level

holding times of the distorted binary signal respectively indicating an amount of time that

a level remains unchanged within a time interval (col. 3, lines 19-24), restoring the

binary signal in the time intervals by transferring a level of the distorted binary signal in

the time intervals in which no level changes have occurred in the distorted binary signal,

and by transferring a level of the distorted binary signal in the time intervals in which

level changes have occurred only when the respective level holding times reach a

predetermined value (col. 3, lines 35-55).  Corcoles does not disclose explicitly using

the method in an optical transmission link exhibiting a distortion time or determining a

duration of high or low pulses of the binary signal including an integer multiple of one

time interval for synchronization of the recovered signal. However, Desurvire et al

teaches properties of an optical communications system for binary signals that exhibits

distortion. Desurvire et al teaches that an optical communications system exhibits

Gordon-Haus jitter which gives rise to uncertainty concerning the arrival times of signals

(col. 1, lines 27-28). One skilled in the art acknowledges that the distortion time

exhibited due to Gordon-Haus jitter is notoriously known in the art. Further, Desurvire et

al teaches a method to overcome this jitter by determining the clock rate or duration of

high or low pulses of the binary signal to synchronize the regeneration of the binary

signals (col. 3, lines 19-22; lines 10-18). In view of the determination of the clock rate of

a binary signal as taught by Desurvire et al as applied to the correction of distortion time

in a binary communication signal, it would have been obvious to apply this teaching to

the method of Corcoles for the correction of distortion time being exhibited in an

conductive transmission system or an optical transmission system. Therefore, it would

have been obvious to one of ordinary skill in the art at the time which the invention was

made to determine the clock rate or duration of high or low pulses of the binary signal

as taught by Desurvire et al because it could be used to re-synchronize the restoration

of the binary signal, and hence correct the distortion time or phase shift of the

transmitted binary signal because it is an advantage to correct the distortion time or

phase shifting when regenerating or repeating a signal to ensure that the distortion

times do not propagate unduly. Further, it is obvious to one of ordinary skill in the art

that the method of Corcoles could be applied to any binary transmission system

exhibiting distortions including an optical transmission system as suggested by

Desurvire et al.

Regarding claim 2, Corcoles in view of Desurvire et al disclose the limitations of

claim 1 as applied above. Further, Desurvire et al discloses that a type of distortion,

which can be determined in an identification mode of operation, is taken into

consideration for weighting the level holding times for restoring the binary signal in the

time intervals in which level changes have occurred. Desurvire et al teaches that binary

signals having different wavelengths will have different distortion times (col. 6, lines 1-

12). Because the type of distortion or amount of phase shift can be determined in an

identification mode of operation the various distortion times or phase shifts can be

accommodated during the regeneration of the binary signal(s). Desurvire et al discloses

that, as a result, all of the relative phase shifting between channels can be re-

synchronized (col. 6, lines 19-22). While Desurvire et al discloses that the different

channels are having different wavelengths, this leads to the application of the

determination of the phase shifting or distortion type as a function of wavelength for the

use of the method of Corcoles in view of Desurvire et al in an optical communications

system. However, one skilled in the art further understands the teachings of Desurvire

et al regarding the determination of the phase shifting or distortion type as a function of

wavelength in an optical communications system to be analogous to that of frequency in

an electrical or conductive communications system. Hence, the teaching is applicable

to both optical communication and conductive communication systems, and the

distortion recovery method of Corcoles in view of Desurvire et al as viewed by one of

ordinary skill in the art has been determined to be applicable to both types of systems.

Regarding claim 3, Corcoles in view of Desurvire et al disclose the limitations of

claim 1 as applied above. Further, Desurvire et al discloses that the clock rate has

been determined to apply appropriate phase shifting to provide synchronous

regeneration of a binary signal (col. 3, lines 23-26). Hence, the teaching is applied so

that after each level change, the subsequent time intervals are synchronized. The

purpose of the acquisition of the clock rate of the binary signals is for the sole purpose

of synchronization of the regenerated binary data signal.

Regarding claim 4, Corcoles discloses a circuit arrangement for restoring a

binary signal from a distorted binary signal, comprising: means for determining time

intervals (fig. 5b, refs, 7-12) each including at least twice the distortion time (col. 3, lines

24-27 - 8 samples being twice the distortion time of 4 -), means for detecting an

occurrence of level changes of the distorted binary signal in the time intervals (col. 3,

lines 19-21, lines 35-40), means for determining level holding times of the distorted

binary signal respectively indicating an amount of time that a level remains unchanged

within a time interval (col. 3, lines 19-24), means for restoring the binary signal in the

time intervals by transferring a level of the distorted binary signal in the time intervals in

which no level changes have occurred in the distorted binary signal, and by transferring

a level of the distorted binary signal in the time intervals in which level changes have

occurred, only when the respective level holding times reach a predetermined value

(col. 3, lines 35-55). Corcoles does not disclose explicitly using the arrangement in an

optical transmission link exhibiting a distortion time or means for determining a duration

of high or low pulses of the binary signal including an integer multiple of one time

interval for synchronization of the recovered signal. However, Desurvire et al teaches

properties of an optical communications system for binary signals that exhibits

distortion. Desurvire et al teaches that an optical communications system exhibits

Gordon-Haus jitter which gives rise to uncertainty concerning the arrival times of signals

(col. 1, lines 27-28). One skilled in the art acknowledges that the distortion time

exhibited due to Gordon-Haus jitter is notoriously known in the art. Further, Desurvire et

al teaches means to overcome this jitter by determining the clock rate of the binary

signal to synchronize the regeneration of the binary signals (col. 3, lines 19-22; lines 10-

18). In view of the determination of the clock rate of a binary signal as taught by

Desurvire et al as applied to the correction of distortion time in a binary communication

signal, it would have been obvious to apply this teaching to the method of Corcoles for

the correction of distortion time being exhibited in an conductive transmission system or

an optical transmission system. Therefore, it would have been obvious to one of

ordinary skill in the art at the time which the invention was made to determine the clock

rate or duration of high and low pulses of the binary signal as taught by Desurvire et al

because it could be used to re-synchronize the restoration of the binary signal, and

hence correct the distortion time or phase shift of the transmitted binary signal because

it is an advantage to correct the distortion time or phase shifting when regenerating or

repeating a signal to ensure that the distortion times do not propagate unduly. Further,

it is obvious to one of ordinary skill in the art that the circuit arrangement of Corcoles

could be applied to any binary transmission system exhibiting distortions including an

optical transmission system as suggested by Desurvire et al.

Regarding claim 5, Corcoles in view of Desurvire et al disclose the limitations of

claim 4 as applied above. Further, Desurvire et al discloses that a type of distortion,

which can be determined in an identification mode of operation, is taken into

consideration by a means for weighting the level holding times for restoring the binary

signal in the time intervals in which level changes have occurred. Desurvire et al

teaches that binary signals having different wavelengths will have different distortion

times (col. 6, lines 1-12). Because the type of distortion or amount of phase shift can be

determined in an identification mode of operation the various distortion times or phase

shifts can be accommodated during the regeneration of the binary signal(s). Desurvire

et al discloses that, as a result, all of the relative phase shifting between channels can

be re-synchronized (col. 6, lines 19-22). While Desurvire et al discloses that the

different channels are having different wavelengths, this leads to the application of the

determination of the phase shifting or distortion type as a function of wavelength for the

use of the method of Corcoles in view of Desurvire et al in an optical communications

system. However, one skilled in the art further understands the teachings of Desurvire

et al regarding the determination of the phase shifting or distortion type as a function of

wavelength in an optical communications system to be analogous to that of frequency in

an electrical or conductive communications system. Hence, the teaching is applicable

to both optical communication and conductive communication systems, and the

distortion recovery method of Corcoles in view of Desurvire et al as viewed by one of ordinary skill in the art has been determined to be applicable to both types of systems.

Regarding claim 6, Corcoles in view of Desurvire et al disclose the limitations of claim 4 as applied above. Further, Desurvire et al discloses that the clock rate has been determined to apply appropriate phase shifting to provide synchronous regeneration of a binary signal (col. 3, lines 23-26). Hence, the teaching is applied so that after each level change, a means is provided so that subsequent time intervals are synchronized. The purpose of the acquisition of the clock rate of the binary signals is for the sole purpose of synchronization of the regenerated binary data signal.

Regarding claim 7, Corcoles in view of Desurvire et al disclose the limitations of claim 2 as applied above. Further, Desurvire et al discloses that the clock rate has been determined to apply appropriate phase shifting to provide synchronous regeneration of a binary signal (col. 3, lines 23-26). Hence, the teaching is applied so that after each level change, the subsequent time intervals are synchronized. The purpose of the acquisition of the clock rate of the binary signals is for the sole purpose of synchronization of the regenerated binary data signal.

Regarding claim 8, Corcoles in view of Desurvire et al disclose the limitations of claim 4 as applied above. Further, Desurvire et al discloses that the clock rate has been determined to apply appropriate phase shifting to provide synchronous regeneration of a binary signal (col. 3, lines 23-26). Hence, the teaching is applied so that after each level change, a means is provided so that subsequent time intervals are

synchronized. The purpose of the acquisition of the clock rate of the binary signals is

for the sole purpose of synchronization of the regenerated binary data signal.
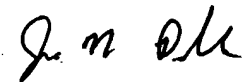
### Conclusion

7.     **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

8.     Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jason M Perilla whose telephone number is (703) 305-

0374. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system.  Status information for

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Perilla
April 16, 2004

jmp

STEPHEN CHIN
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